Author index

Barber S.
What's the Buzz? 254

Baxter S.
To shoot for the Moon 162

Bond A. et al
SKYLON – a realistic single stage spaceplane 158

Bowman G.A.
Legacy of the last men on the Moon 377
Lunar geologist 430

Burgess C.
Lost Mercury 208

Catchpole J.
Back to the future? 456
Boeing found guilty of "serious and substantial violations of federal law" 404
New directions 242
Who is going to pay? 60

Condry M.
A real space mission 176

Corneille P.
Europe faces launcher issues after Ariane 4 retires 280
Europe's space port 194
First East-German in space - Soyuz 31 to Salyut 6 345
Mariner 10 to Venus and Mercury 164
Politicians in space 514
Soyuz TM-16 to space station Mir 212

Dark B.
Successful drop tests bode well for UK capsule 408

Day D.A.
From cameras to monkeys to men 380
US Government declassifies reconnaissance satellites information 116
A square peg in a cone-shaped hole 71

Day D.A. & Siddiqi A.A.
The Moon in the crosshairs 466

Dove J.
High spirits despite aborted balloon attempt 447

Fawkes S.
British space policy – time for a change as public consulted 184

French F.
Mercury rising 250
Perchance to dream 372
Understanding space 422
Recapturing the future 510

Frieling T.J.
Apollo redux 332

Furniss T.
International Space News 4, 48, 92, 136, 180, 224, 268, 312, 356, 400, 444, 488
Shuttle mission to demo new safety features 454

Geenty J.
Lost opportunities 33

Hall A.
China and the ISS 264

Hardy D.A.
Faces of the Moon 103

Hawkey A.
Mechanics and energetics of human movement on Mars 396
Mission to Mars – the ethical dilemma 278

Hengeveld E.
Apollo vacuum chamber tests 506
The light stuff 464

Iron D.
Balancing act 100

Irvine M.
Optimistic times 246

Kidger N.
Chronology of the International Space Station 28, 64, 110, 153, 202, 237, 282, 326, 368, 411, 460, 500
Two person crew to man the ISS 137

Kislyakov A.
Space Station on verge of financial collapse 504

Lockhart J.
The Earth – our stellar cave 44

London J.
Propelling Britain back into space 232

Long K.F.
To dream of space 132

MacDonald R.S.
Leaving Earth 484

Morris K.
Looking into the unknown 498

Owens L.
En route to the Moon 496
Europe on target for Mars with orbiter and lander 316
Inmarsat casts net further with new generation satellites 4

Pealer D.
Apollo 8 – the gamble NASA won 122
Reflections 286

Pesavento P.
The many deaths of Vladimir Komarov 292, 337

Powell J.W.
NASA's crawler transporters 190
Piecing together the evidence 415
Silent sentinels 330
Symbolic Mars 364

Rosenblum L.
'Gibui' – Israel's former back-up astronaut 256

Rowe W.J.
The reservoir 88

Sastrowardoyo H.B.
Astronaut Brian Duffy reflects on his four Shuttle missions 58

Schuiling R.L.
Columbia's final mission 147
Endeavour overcomes technical hitches to deliver sixth ISS crew 106
STS-112 advances Space Station assembly 20

Siddiqi A.A.
Soyuz variants - a 40-year history 118

Silvester J.
Manned space flight in the sidings 440

Stephenson D.G.
Passage to space 198

van Beest E.R. & van de Haar G.
Soviet space hardware on display in Florida 26

van de Haar G.
New activities at Marshall Space Flight Center 450

van Oene J.
First Space Shuttle set for 'retirement' 419
Solar energy powers Europe to the Moon 324

Wessels M.A.
Earth observation systems in a time of war 14

Subject index

A
Aerojet test fire 54
Agena rocket 71
Air Force Space and Missile Museum 330
Alcatel 230, 314, 405, 490,495
Alenio Spazio 225, 227, 312, 490
Algeria
  first satellite (ALSAT-1) 7, 50, 225
Allied Aerospace 490
Altair (NASA - first unmanned aerial vehicle) 315
AMC-9 313
Amercian missiles 330
Anik F1 54, 138
Apollo, missions (general) 33, 122, 372, 423, 506
  Apollo 1 423, 465
  Apollo 8 122
  Apollo 9 286
  Apollo 10 465
  Apollo 11 254, 456
  Apollo 17 33, 372, 430
  vacuum chamber tests 506
Apollo-based craft 272, 456
Aqua spacecraft (NASA) 361
Arabsat 490
Argentina, CONAE (Comision Nacional de Actividades Espaciales) 361
Arianespace 7, 227, 314, 357, 448
  Ariane 4 94, 137, 195, 280
  Ariane launchers 280
  Ariane 5 7, 9, 53, 137, 187, 197, 227, 268, 280, 357, 448, 490
Artemis 137, 182
Astra IK satellite 11, 48, 490
Astrium 138, 490
Astronauts 357
  Buzz Aldrin 254
  Joe Allen 423
  Bill Anders 122
  Michael Anderson 146
  Neil Armstrong 254
  Jeffrey Ashby 21, 31
  Ken Bowersox 107, 110, 137, 153, 202, 237, 282
  David Brown 146
  Scott Carpenter 250
  Eugene Cernan 372, 430
  Kalpana Chawla 146
  Frank De Winne 13, 66
  Brian Duffy 58
  Pedro Duque 10, 53, 137, 312, 489, 502
  Michael Finke 137
  Michael Foale 137, 284, 490
  Christer Fuglesang 53
  Chris Hadfield 140
  John Herrington 107
  Rick Husband 146
  Sigmund Jahn 345
  Yang Liwei 488
  Paul Lockhart 107
  Edward Lu 224, 285, 326, 368, 400, 411, 460, 500
  Michael Lopez-Alegria 107
  Sandra Magnus 21, 31
  Itzhak Mayo 256
  William McCool 146
  Jim McDivitt 286
  Pamela Melroy 21, 31
  Claude Nicollier 226
  Bob Parker 423
  Don Pettit 107, 110, 137, 153, 202, 237, 282
  Ilan Ramon 146
  Harrison Schmitt 372, 431
  Rusty Schweickart 286
  Dave Scott 286
  Piers Sellers 21, 28
  Alan Shepard 208
  Deke Slayton 423
  Donald Thomas 110, 449
  Jim Wetherbee 53, 107
  Peggy Whitson 28, 65, 107
  David Wolf 21, 28
Astronaut candidates 313
Astronaut experiments 53
Astronaut scientists 422
Atlas
  IIA 99
  V 7
Atlas missiles 330
Aurora (ESA) 269

B
Baikonur cosmodrome, Kazakhstan 66, 224, 284, 313, 345, 403
Ballooning, Qinetiq 1 447
Beagle 2 93, 187, 316, 363, 365, 275, 403
Beryllium 495
BILSat 1 492
BNSC (British National Space Centre) 183, 184
Boeing 272, 404
Boeing Satellite Systems 49, 141, 229, 230, 315, 448
Book notices 41, 84, 172, 218, , 262, 481, 521
Brazil's space programme 314, 444, 495
Buran (Soviet space shuttle - BOR-5) 26

Subject index

C

Calipso satellite (Cloud Aerosol Lidar and Infrared Pathfinder Satellite Observations) 361
Canadian Space Agency 51, 139, 140, 491
SCISAT-1 (Scientific Satellite Atmospheric Chemistry Experiment) 406
Cassini spacecraft (NASA) 184
CBERS (China Brazil Earth Resources Satellite) 51
Cervantes mission (ESA) 491, 502
China
- booster failed 141
- Long March boosters 141, 314
- manned space flight 136, 274, 488
- environment satellites 405
- navigation satellites 314
- reconnaisance satellite 6
- ShenZhou spacecraft 136, 403, 488
- test pilots 274

CHIPS satellite (NASA) 96
CIA intelligence 466
Cloudsat satellite (NASA) 97, 361
CNES 187, 194, 268, 314, 406, 495
- Corot satellite (CNES) 99, 405
- Myriade - new micro satellites 406
- Pleiades spacecraft 495

Collier's space magazine 246
Columbus module 227
COM DEV 444
Commercial space 198, 272, 361, 402
Committee on Earth Observation Satellites (CEOS) 9
Coordination Group for Meteorological Satellites (CGMS) 15
Correspondence 38, 80, 126, 166, 213, 257, 302, 346, 390, 433, 476, 516
Cosmonauts
- candidates 95, 139, 230, 320
- female 361
- Malayan candidate 402
- wedding 412
- Nicolai Budarin 107, 110, 137, 153, 202, 237, 282
- Valery Bykovsky 345
- Valery Korzun 29, 65, 107
- Yuri Gagarin 297
- Alexander Kaleri 284, 491
- Vladimir Komarov 292
- Yuri Lonchakov 13, 66
- Yuri Malenchenko 224, 285, 326, 368, 400, 411, 460, 500
- Gennadi Padalka 137
- Sergei Treschev 28, 65, 107
- Fyodor Yurchikhin 21
- Sergei Zaletin 13, 66

Crew portraits 464
Crew return vehicle (X-38) 242

D

Deep Impact mission (NASA) 228
Deep Space 1 spare 403
Defence Space Communications Satellite (US Air Force DSCS) 445
Delta, II 95, 228, 361
- IV 445

Desert sands 271
Digital Globe 493
DMC (Disaster Monitoring Constellation) satellites 492

E

EADS Astrium 139, 361, 493, 495
Earth Observation Summit 400
Earth observation systems 14
Education 367
EELV 404
EGNOS (European Geostationary Navigation Overlay Service) 313
Energia 29
Envisat (ESA) 7, 11, 182, 320, 446
ESA (European Space Agency) astronauts 10, 13, 188
ESA general 5, 137, 226, 226, 240, 268, 271, 313, 356, 361, 490
- Aurora 226, 269, 490
- Columbus module 227
- education 367
- ExoMars 226, 490
- Guiana Space Centre (GSC) 194, 314
- MSG (Microgravity Science Glovebox) 240, 283, 368, 411, 460
- NEO (Near Earth Objects) mission 271
- Node 2 312
- StarTiger project 140

ESOC (European Space Operations Centre) 276
EUMETSAT 16, 96, 226
European Commission - Green Paper 93, 268
European interparliamentary space conference 10
Europe's future in space 5, 268
Eutelsat 406, 493
EVA (Extra Vehicular Activity) 107, 111, 282
Everest challenge 138

F

First East German in space 345
First space flight fatality 292, 337
First wedding in space 412

G

GALEX (NASA's Galaxy Evolution Explorer) 189, 270
Galileo - Europe's global satellite navigation system 4, 100, 226, 313, 356, 491
Galileo orbiter (NASA) 9, 44
Globalstar 455
Glonass navigation satellites 52
GRACE satellites (NASA/German Aerospace Centre) 141
GPS next generation 52

H

HellasSat 313
Hessi satellite launch (NASA)
HETE (NASA's High-Energy Transient Explorer) 184
Hot Bird 7 406
Hot Bird 8 493
Hotol spaceplane 158
Hubble Space Telescope 52, 97, 231, 269, 357, 360, 446
Hungary's space future 226

I

ICESat satellite (NASA) 96
IKONOS satellite 18
India's space programme 444
Indonesia
- climate monitoring satellite 455
- Telkom 2 satellite 7, 9

Inmarsat
- satellite control centre 4
- Inmarsat-4 (I-4) satellites 4

Integral satellite images (ESA) 55
Intelsat 143
International Launch Services 7, 94, 99, 143, 229, 313
International Space Station 13, 20, 51, 61, 106, 137, 224, 227, 237, 312, 313, 450
- Canandarm 2 29, 111, 237, 501
- Columbus module 227
- Destiny laboratory 20, 283, 326, 368, 411, 460
- education 367
- eighth crew 491
- EVA (Extra Vehicular Activity) 22
- future of 152, 188, 400, 504
- JEM (Japanese Experiment Module), Kibo 312, 363, 449
- MSG (Microgravity Science Glovebox) 240, 283, 501 368, 411, 460
- Node 2 227, 312
- Port-1 (P1) segment 106, 111, 237, 282
- Starboard 0 truss 282
- Starboard 1 (S1) truss 22, 282
- Starboard 6 (S6) truss 51
- Unity 28, 66, 414
- X-38 - Space Station rescue 242
- Z1 (Zenith) Truss 282
- Zarya 28

Into Space
- The Earth - our stellar cave 44
- The reservoir 88
- To dream of space 132
- A real space mission 176
- China and the ISS 264
- Apollo redux 352
- Mechanics and energetics of human movement on Mars 396
- Manned space flight in the sidings 440
- Leaving Earth 484

IPSTAR-1 comsat 272
Iran's Mesbah satellite 230
Israeli back-up astronaut 256
Israeli defence ministry 402
Israel Space Agency 273
ISRO (Indian Space Research Organisation) 11, 99, 227, 273, 274, 315, 444
Italian Space Agency 225

J

James Webb Space Telescope 495
Japan
- Bepi Columbo 363
- High Speed Flight Demonstration programme 273
- H2A booster 11, 94, 225, 405, 444
- ISAS (Institute for Space and Astronautical Science) 141, 271
- Kibo, ISS module 312, 363, 449
- Lunar A - Moon orbiter 444
- Musec C spacecraft 271
- National Space Developmenmt Agency (NASDA) 273, 314, 444
- space shuttle prototype 6

JIMO (NASA's Jupiter Icy Moons Orbiter) 405
John Hopkins University 230
Johnson Space Center 30
JPL (Jet Propulsion Laboratory) 162, 403, 405
- history of 162, 164

Jupiter missiles 333

K

Kennedy Space Center 31, 51, 312, 331
Kepler planet-hunter spacecraft (NASA) 13
Kosmotras 53
Kourou, French Guiana 95, 194, 268, 314, 493

L

Launcher alliance 402
Lockheed Martin 140, 228, 272, 445
Lunar A - Japan's Moon orbiter 444

M

Malayan cosmonaut 402
Mariner 10 Venus/Mercury spacecraft 164
Mars
- Beagle 2 93, 187, 274, 316, 363, 365, 403
- commemorative aspect 364
- ethical dilemma 278
- ExoMars 226
- Mars aircraft 269
- Mars Express mission (ESA) 93, 275, 316, 363, 445
- MER (NASA's Mars Exploration Rovers) 269
- Spirit 316
- Odyssey mission (NASA) 139, 231
- Phoenix lander 401

Marshall Space Flight Center 450
Maxus 5 rocket 226
MDA (US Missile Defence Agency) 405
Mercury 164, 228
- Bepi Columbo mission (ESA) 363

Mercury missions
- history of 208, 250
- seven 465

Messenger (NASA's Mercury Surface, Space Environment, Geochemistry and Ranger spacecraft) 228
Metsat, US Air Force 314
MIDEX satellites (NASA Medium-Class Explorer mission) 228
Minotaur booster 189
Mir space station 212
Model spacecraft industry 246
Moon
- Chandrayan - India's first Moon probe 444
- Lunar A - Japan's Moon orbiter 444
- orbiting satellite 7
- SMART-1 324

Mount Etna 11
MSG-1 (Meteosat Second Generation) 57
MSG-4 226

N

NASA
- new ISTP (Integrated Space Transportation Plan) 60, 188, 242, 456
- reorganisation/reshaping 359, 401, 449, 453

Navstar GPS 2R9 satellite 228
NEDIS (National Environmental Satellite, Data and Information Services) 14
Neptune 269
NERC (National Environment Research Council) 183
NigeriaSat 1 492
NIMA (National Imagery and Mapping Agency) 18, 116, 493 143
Nimiq 2 satellite 99
NOAA (National Oceanic and Atmospheric Administration) 14, 271

O

Odissea mission (ESA) 13, 66
Oil spill (Spain) 7
OLS (Operational Linescan System) 270
Open University 271
  Planetary and Space Sciences Research Institute (PSSRI) 10
Orbital Recovery Corporation 48
Orbital Sciences 9, 93, 188, 270, 406, 490
Orbital Space Plane (NASA) 62, 188, 228, 242, 270, 272, 256, 450, 456, 491

P

Paksat 1 230
PanAmSat 227, 448
Pegasus XL booster 189, 270, 406
Pluto - NASA's New Horizons mission 9, 184
Politicians in space 514
Proba 1 402
Proba 2 492
Progress
  M1-10 329, 368, 463, 503
  M-9 29, 65, 202
  M-46 28
  M-47 152, 202, 313, 411, 460
  M-48 449, 500
Proton 273, 313
  K/Block DM 48
  M/Breeze M 99, 403

Q

QinetiQ 269, 271
  Qinetiq 1 - aborted mission 447

R

Ranger missions (NASA) 162
Reconnaisance satellites, early American
  CORONA 116, 380, 466
  KH-7 (GAMBIT), KH-9 (HEXAGON) 116, 466
  Samos E-5 71, 380
Redstone missiles 334
Remote sensing 314
RLV (Reusable Launch Vehicle) 63, 93
Rosaviakosmos (Russian Space Agency) 6, 49, 188, 361, 444, 449, 455
Rosetta (ESA) 94, 181, 268, 446
Russia's early space programme 292, 466
  Sergei Korolev 469

S

Salyut 1 space station 60
Samos E-5 recoverable satellite 71, 380
Satellite digest 12, 56, 98, 142, 186, 230, 272, 318, 362, 407, 451, 494
Saturn V 33
Scaled Composites 274
SCISAT-1 (Canadian Space Agency) 406
Sea Launch 143, 403, 495
September 11 2001 14
Shuttle mission 20, 106
SIRTF (NASA's Space Infrared Telescope Facility) 187, 227, 270, 498
Skylab 33, 60, 287
Skylon spaceplane 158
Skynet 4 447
Skynet 5 139, 361, 447
SMART-1 mission (ESA) 7, 49, 324, 363, 496, 490
Society News 42, 86, 174, 306, 351, 394, 439, 523
SOHO (NASA's Solar and Heliosphere Observatory) 363
  images 55, 136
Solar Terrestrial Probe (NASA) series 491
SORCE spacecraft (NASA) 93
South Korea 50, 54, 230, 314
Soviet manned lunar programme 466
Soyuz
  general 60, 118, 493
  history 118, 292, 337, 345
  Soyuz 1 292, 337
  Soyuz 31 324
  taxi missions 13, 60, 66
  TMA-1 66, 157, 312
  TMA-2 224, 285, 491
  TMA-3 224, 284, 312, 491
  TM-16 212
  TM-34 13, 66
SpaceShipOne 448
Space art 103
SpaceDev 273, 405
Space downturn 52, 140, 456
Spacehab 147, 491
Space Launch Initiative (NASA's SLI) 52, 242
Space motion sickness
Spaceplane (NASA) 6, 139
  Hotol 158
  Skylon 158
Space Shuttle
  programme, in general 62, 188, 274, 317, 452
  Atlantis 20, 274, 452
  Columbia 48
  loss of, 92, 256
  CAIB (Columia Accident Investigation Board) 144, 180, 274, 317, 358, 401, 415, 452
  crawler transporters 190
  design 312, 317, 359, 453
  Discovery 59
  Endeavour 6, 53, 106
  Enterprise retirement 419
Space Station Chronology 28, 65, 110, 153, 202, 237, 282, 326, 368, 411, 460, 500
'Space tug' 48
Sputnik 14
SSTL (Surrey Satellite Technology) 269, 356, 492
Starchaser Industries 232, 408
Stardust spacecraft (NASA) 362
Starsem 95, 361, 363
STS-42 464
STS-45 (Atlas-1) 58
STS-51C 464
STS-57 58
STS-72 58
STS-92 58
STS-107 48, 146
STS-110 20
STS-112 20, 31
STS-113 106, 110
STS-114 152, 274, 282, 452
Surrey Space Satellite Technology (SSTL) 7
Swedish Space Corporation 7, 273

T

TDRS-J (NASA's Tracking and Data Relay Satellite-J) 49
Telstar 4 493
Terra - Earth observation satellite (NASA) 229
Thor missiles 330
Tiros 1 15
Titan I and II missiles 333
TRMM (NASA's Tropical Rainfal Measuring Mission) 273

U

UK National Space Centre 183
UK space strategy 100, 184, 321
UK Student Space Conference 2003 448
US Space Walk of Fame Museum 26

V

VEGA 96, 447
Venus Express mission (ESA) 49, 138, 361
Vietnam's first comsat - Vinisat 362
Vladimir Komarov 292, 337

W

Welsh International Space Academy (WISA) 9
WildBlue 1 satellite 225
World Meteorological Organisation (WMO) 15

X

X-37 Advanced Technology Demonstrator 243
X-38 (Crew Return Vehicle) (NASA) 242
X-Prize 140, 274, 448, 495

Z

Z1 (Zenith) Truss 282
Zarya 28
Zvezda Service Module 28, 66, 202, 238, 326, 368, 411, 460, 500

Book index

Alfriend K.T. et al	Spaceflight Mechanics 2002	262
Ashford D.	Spaceflight Revolution	521
Bainum P.M. et al	Space Development and Cooperation Among All Pacific Basin Countries	220
Bell J. & Mitton J.	Asteroid Rendezvous	173
Bendisch J.	Space Debris 2001	263
Bleeker J.A.M. et al	The Century of Space	521
Bond P.	The Continuing Story of the International Space Station	522
Bottke Jr W.F. et al	Asteroids III	483
Brunier S.	Solar System Voyage	218
Brunier S.	Space Odyssey	84
Chaisson E.J.	Cosmic Evolution	85
Culp R.D. et al	Guidance and Control 2002	220
D'Amario L.A. et al	Spaceflight Mechanics 2001	84
Donohue G.L. & Zellweger A.G.	Air Transportation Systems Engineering	41
Dunlop S. & Tirion W.	Collins How to Identify the Night Sky	219
Fortescue P. et al	Spacecraft Systems Engineering Third Edition	521
Friedlander M.W.	A Thin Cosmic Rain	263
Garber S.J.	Looking Backwards, Looking Forwards	481
Genta G. & Rycroft M.	Space The Final Frontier?	521
Gilmour J.K.	The Practical Astronomers Deep Sky Companion	483
Godwin R.	Apollo 16	218
Godwin R.	Apollo 17 – The NASA Mission Reports Vol. 1	482
Harland D.M.	Mission to Saturn	84
Harvey B.	Europe's Space Programme	483
Hawkins G.S.	Mindsteps to the Cosmos	220
Heppenheimer T.A.	Development of the Space Shuttle 1972-1981	84
Hey N.	Solar System	172
Inglis M.	Observers Guide to Stellar Evolution	483
Irvine M.	Creating Space	219
Lambright W.H.	Space Policy in the 21st Centruy	482
Lane H.W.	Isolation	84
Lasser D.	The Conquest of Space	173
Launius R.D. & Jenkins D.R.	To Reach the High Frontier	262
Lin R.P. et al	The Reuven Ramaty High-Energy Imager Solar Spectroscopic	481
Macdonald L.	How to Observe the Sun Safely	483
North G.	Astronomy in Depth	483
O'Meara S.J.	Deep-Sky Companions: the Caldwell Objects	482
Pauyluhn A.	The Radiometric Calibration of SOHO	262
Perlin J.	From Space To Earth	262
Sadeh E.	Space Politics and Policy	482
Smithsonian Institution	Official Guide to the National Air and Space Museum	219
Spencer D.B. et al	Astrodynamics 2001	219
Sullivan S.P.	Virtual Apollo	522
Swan P.A.	Global Mobile Satellite Systems	482
Taylor F.W.	The Cambridge Photographic Guide to the Planets	41
Thompson M.O.	At the Edge of Space	522
Times Books	The Times Wallchart of the Night Sky	219
Turnill R.	The Moon Landings	172
Weasner M.	Using the Meade ETX	41
Woodmansee L.S.	Women Astronauts	172
Zubrin R.	On to Mars Colonizing a New World	218

Computer Software

BIS	Space Stations	481